



M120W Moisture Meter for Wood and Building Materials



Operation Manual

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PURPOSE AND USE

METRINCO M120W is designed for measuring moisture content in wood and building materials in a non-destructive way. Device operation is based on the dielcometer method of measurement.

TECHNICAL CHARACTERISTICS

- measurement method – dielcometer, non-destructive;
- wood moisture content measuring range: 0–80% (depending on the group);
- building materials moisture content measuring range: 0-99.9% (depending on the group);
- wood groups number: 5;
- building material groups number: 6;
- accuracy: $\pm 1.5\%$;
- resolution: 0.1%;
- penetration of high-frequency radiation field: 50 mm.

- operation conditions: 0~60 °C, 0-90% relative humidity;
- power supply: 3 AAA 1.5 V batteries;
- dimensions: 115x68x25 mm;
- weight: 140 g with batteries



DEVICE DESCRIPTION

The device has four buttons and a graphic screen for displaying information. Device visual appearance is shown in Fig. 1.

1. Sensor.
2. Screen.
3. POWER button.

Figure 1 – Device visual appearance

4. SET button.
5. \wedge / HOLD button.
6. \vee / LIGHT button.

BUTTONS DESIGNATION:

- On/off (POWER) – turning on or off when the button is held pressed.
- Settings (SET) – selection of the measurement group according to wood type or density or building material name.
- \wedge button – upward scroll in the material group selection mode or HOLD function in the measurement mode.
- \vee button – downward scroll in the material group selection mode, turning on/off ‘LIGHT’ backlight function in the measurement mode.

DEVICE OPERATING MODES

The device operates in the following modes:

Measurement mode (SCAN) is the primary device operating mode, which ensures displaying measurement results on the screen, selected wood group, battery charge icon, as shown in Fig. 2.

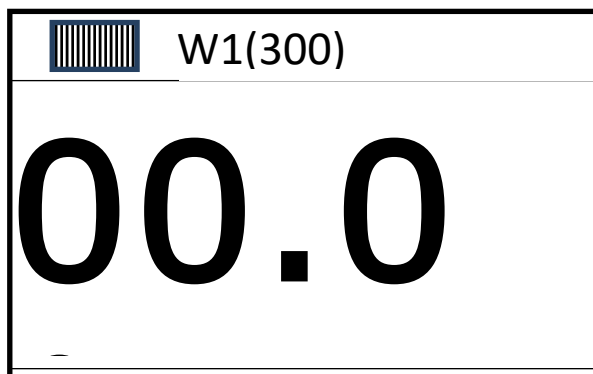


Figure 2 – Device screen in the measurement mode

Wood selection mode (SET) allows wood group selection according to wood type or material density.

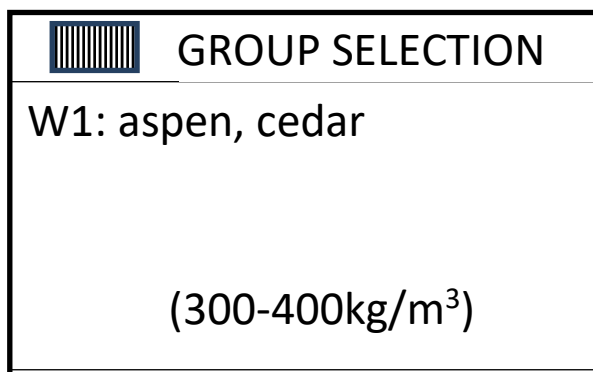


Figure 3 – Device screen in the wood selection mode

Calibration mode (CAL) is intended for calibrating the device at zero point of the measurement range. This mode is used when the measurement result in the measurement mode does not show a zero value in the absence of a sample being measured.

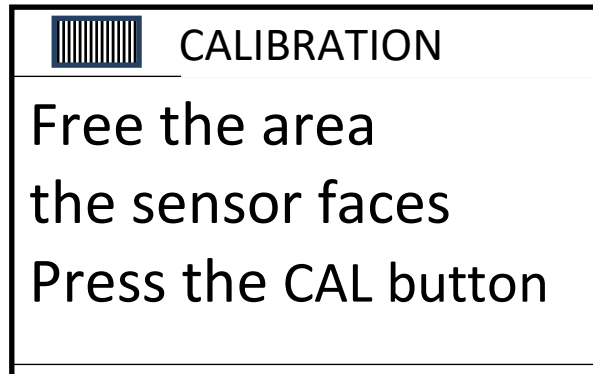


Figure 4 – Calibration mode screen

INTEGRATED FUNCTIONS

The function of holding measurement results on the screen is turned on/off by pressing the \wedge /HOLD button and in the measurement mode it ensures displaying measurement results on the device screen until the button is pressed again.

Batteries charge control function. The device signals about batteries low charge by displaying a corresponding icon on the display. The device does not turn on when batteries are discharged below a certain threshold but signals a low battery charge by flashing the screen backlight.

Screen backlight function is turned on/off by pressing the \wedge / LIGHT button in the measurement mode.

Auto turn-off function. If the device is inactive (no buttons pressed or no measurement results change) for 5 minutes, it will automatically turn off.

DEVICE OPERATION

In order to take measurements, turn on the device and, if necessary, change the measurement mode. The device is turned on by pressing the 'Power' button. This button must be held pressed for approximately 1 second. After turning on, the device will instantly go into the measurement mode (with previously saved settings). Material group number and type (W – wood, BM – building materials) and the lower density value if wood is selected are shown at the top of the screen.

In order to take measurements, put the device sensor plates against the surface of the material being measured and read the moisture content readings from the device screen. **When measuring wood moisture content, the device sensor plates must be placed along the wood fibres as it shown in Fig. 5.** If measured sample

thickness is less than 50 mm, it is recommended to take sample moisture content readings in the air or by placing a sheet of styrofoam under it.



Figure 5 – Correct placement of the device sensor on a wood sample

To hold measurement results on the screen, press the \wedge /**HOLD** button, pressing this button again will return the device to the measurement mode.

In order to turn off the device, hold pressed the ‘Turn on/Mode’ button for approximately 2 seconds.

The device can determine moisture content of materials under non-conductive coatings. For example, it can read moisture content of screeds under linoleum, bulk materials in PVC bags, etc.

Attention! Make sure that there is no water or other substances on the surface of the measured area in the area the device electrodes face, which could lead to an electrical short circuit between the device sensor electrodes. An electrical short circuit between the sensor plates will lead to distorted measurement results. Moreover, presence of metal objects under the sample surface where the moisture content readings are taken can lead to a significant measurement error.

In order to select a material group, press the ‘SET’ button. A mode selection window will appear on the screen, use the \wedge and \vee buttons to select the required

material group according to the wood name or density range (if wood is selected), which is indicated after the group description in brackets. Pressing the ‘SET’ button again will confirm the selected wood group and return the device to the measurement mode. Material groups description is provided in the table below.

Table of groups of materials for METRINCO M120WB moisture meter

Group	Material	
	Wood	
W1	aspen, cedar	300–400
W2	pine, walnut tree, spruce, poplar, linden, alder	400–500
W3	cherry tree, birch, maple, pear tree, elm	500–600
W4	yew, beech, acacia, oak	600–700
W5	ash, hornbeam, evergreen oak	700–800
	Building materials	
BM 0	plasterboard, fibreboard	
BM 1	cinder block, cinder concrete	
BM 2	plaster, wall tiles, bricks	
BM 3	anhydride cement, sand-cement screed, slag, asbestos, sand	
BM 4	concrete, cement screed	
BM 5	marble	

The device must be calibrated when the measurement result in the measurement mode does not show a zero value in the absence of a sample being measured. To calibrate the device, press and hold the ‘SET’ button when the device is turned off, then turn on the device while holding this button pressed. After that release the buttons and having freed the area the sensor faces press the ‘SET’ button again. After the calibration has been completed, turn off the device.

Warranty for the device is 24 months from the date of sale.

Manufacturer: SCIENTIFIC AND SERVICE FIRM OTAVA LLC (Ukraine)

Service centre telephone number: (044)2219373

www.metrinco.com.ua

Serial number: _____

Date of sale: _____

Seller’s signature and stamp: _____

Wood species density table

Species	Density, kg/m ³
Acacia	670
Alder	500
Apple tree	720
Ash	750
Aspen	470
Bamboo	400
Beech	680
Birch	650
Cedar	570
Chestnut	650
Common hazel	430
Elm	660
Fir	410
Larch	660
Linden	510
Maple	650
Oak	810
Pear	650
Pine	520
Poplar	400
Red wood	800
Rowan (tree)	730
Spruce	450
Willow	450
Willow	460